Building a Meaningful IT PMO: A Year in Retrospect

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Office of the Chief Information Officer

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Speakers

- Introduction – Mark Walther, Deputy CIO, Goddard Space Flight Center

- Program Management Organization Retrospective – Russell Dare, Project Manager

- Customer Perspective – Cliff Leitao, Technical Manager

- Project Manager Perspective – Amy Fedorchak, Project Manager

- The Way Forward – Debbie Sharpe, Chief, IT Program Management Office

Goddard Space Flight Center Organization
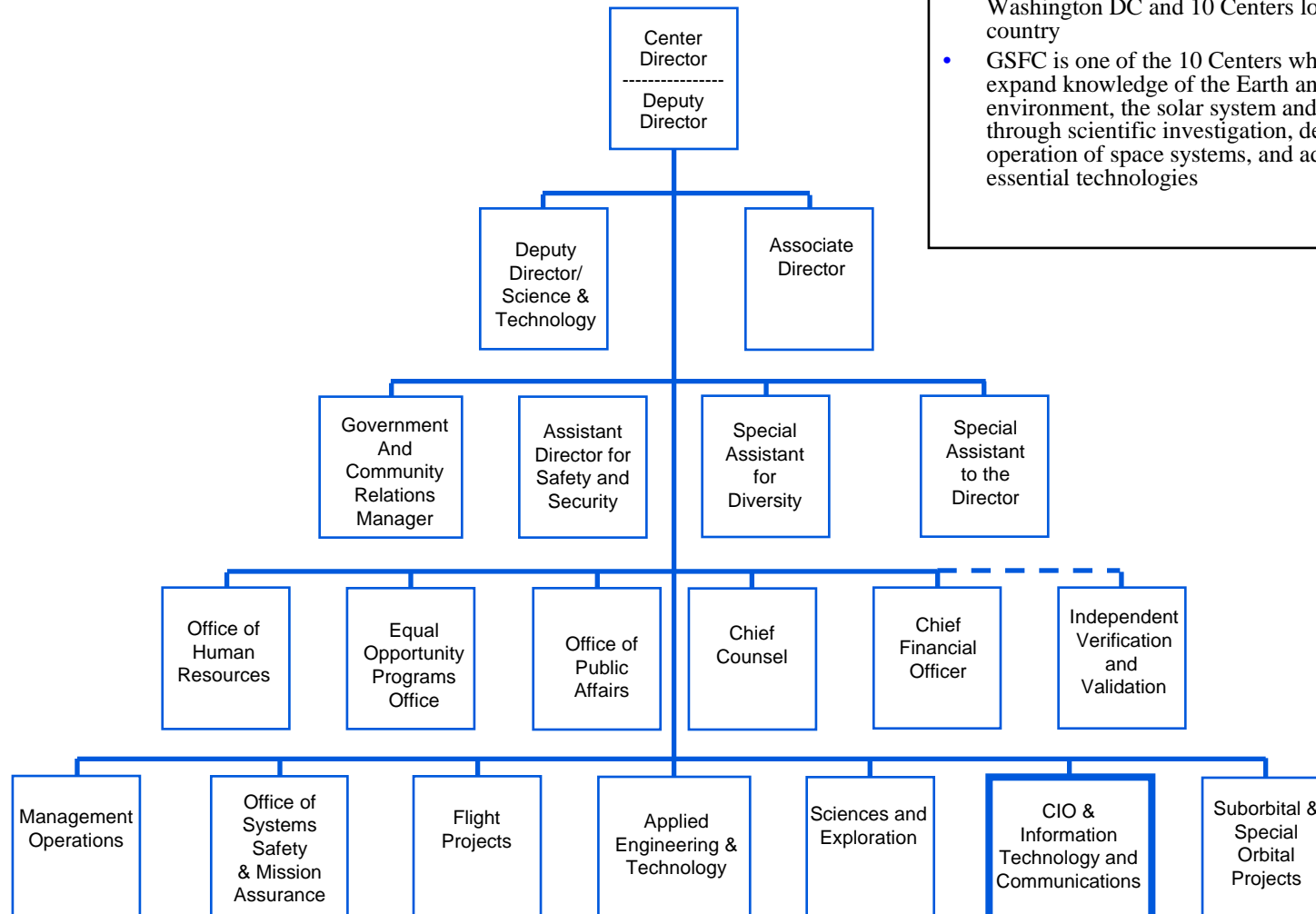
- NASA is composed of Headquarters in Washington DC and 10 Centers located around the country
- GSFC is one of the 10 Centers whose mission is to expand knowledge of the Earth and its environment, the solar system and the universe through scientific investigation, development and operation of space systems, and advancement of essential technologies

Center Director ---------------- **Deputy Director**

- Deputy Director/ Science & Technology
- Associate Director

- Government And Community Relations Manager
- Assistant Director for Safety and Security
- Special Assistant for Diversity
- Special Assistant to the Director

- Office of Human Resources
- Equal Opportunity Programs Office
- Office of Public Affairs
- Chief Counsel
- Chief Financial Officer
- Independent Verification and Validation

- Management Operations
- Office of Systems Safety & Mission Assurance
- Flight Projects
- Applied Engineering & Technology
- Sciences and Exploration
- CIO & Information Technology and Communications
- Suborbital & Special Orbital Projects

Redefining the role of the CIO

- GSFC CIO also serves as the Director of the Information Technology and Communications Directorate (ITCD)
  - CIO proposed a transformation of IT management to significantly increase levels of consolidation and standardization of the IT infrastructure to the Center Director and Senior Leadership in the Fall of 2006; received concurrence
  - Information Management Council (IMC) established as the Center's IT Governance body in March 2007
  - CIO Technical Advisory Committee (CIOTAC) established to support the IMC
  - IT Transition Team established to perform an assessment of current Center-wide IT organization and management structures; develop and implement recommendations for consolidation and enhancement
- In addition, in September 2007, the NASA Strategic Management Council (SMC) approved a CIO plan for improving the management of information technology (IT)
  - Improve IT governance
  - Increase transparency of IT spending
  - Institute an application portfolio management process
  - Establish an enterprise-wide infrastructure management approach
  - Improve IT governance, including incorporation of 7120.7
- Expands the scope of IT to be managed by the CIO
- Implementation to be accomplished through the Center CIOs
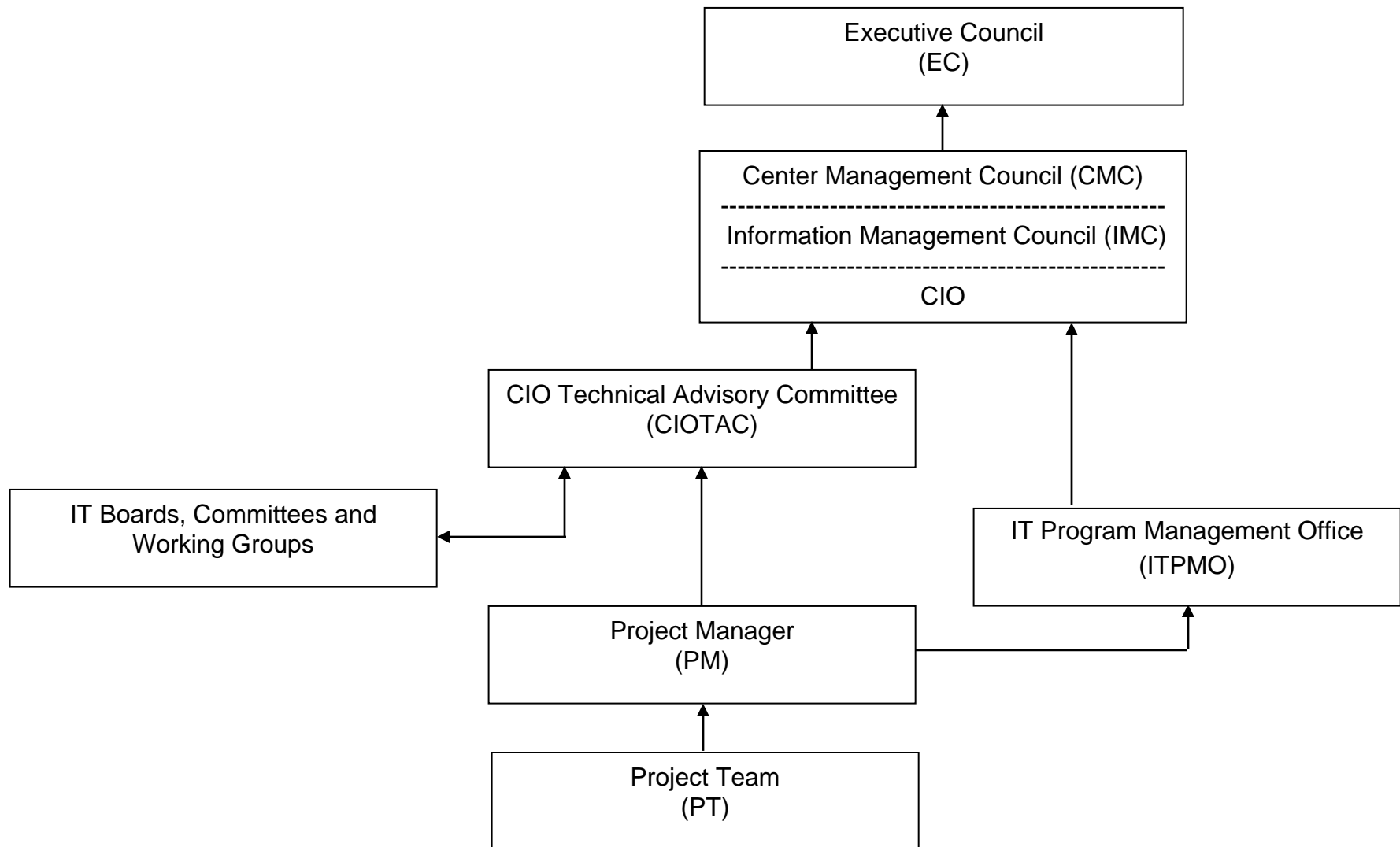- A CIO best practice is the establishment of an IT Program Management Office (PMO)

Challenges
- Overcoming customer dissatisfaction
- Absence of consistent processes and practices applied to the rollout of IT initiatives
- Transforming an organization whose existing staff had been operating under disparate levels of project management rigor
- Expand the program management role of the CIO across the Center

GSFC Information Technology Governance

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                    │               (EC)                  │
                    └─────────────────────────────────────┘
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                    ┌─────────────────────────────────────┐
                    │   Center Management Council (CMC)    │
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                    │ Information Management Council (IMC)  │
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                    │               CIO                    │
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          │ CIO Technical Advisory   │
          │   Committee (CIOTAC)     │
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│ IT Boards,         │  ←─────            │ IT Program Management    │
│ Committees and     │                    │      Office (ITPMO)      │
│ Working Groups     │                    └──────────────────────────┘
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          │    Project Manager       │─────────────
          │         (PM)             │
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          │     Project Team         │
          │         (PT)             │
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# OCIO - IT Program Management Office (PMO)

- The PMO was established to lead the formulation, development, implementation, and transition to operation of IT projects
    - Application of sound and consistent project management methodologies to ensure successful outcomes for both existing and new projects
    - Integrated oversight and management of projects
    - Strategy for growing IT project managers
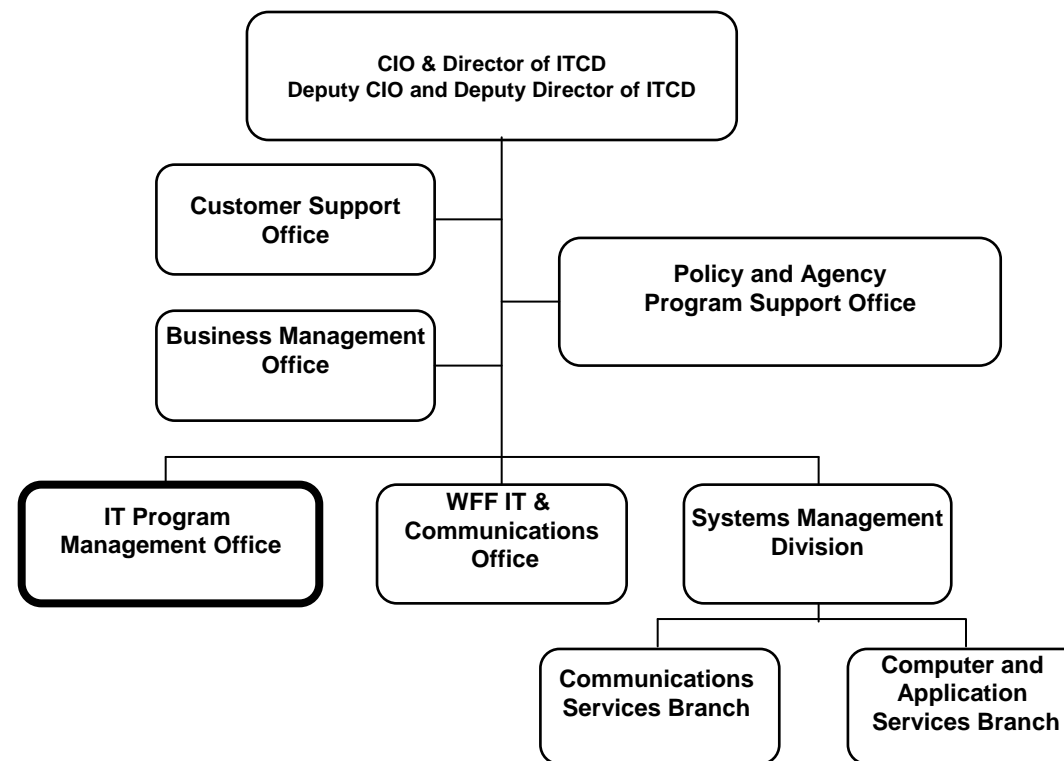
Challenges Prior to Establishing the PMO

- Insufficient repeatable processes

- Insufficient customer involvement in problem definition and requirements development

- Customers are not always kept informed of project status

- Gaining leverage for the implementation of a structured project management approach

- Knowing when an initiative becomes a project

- Accountability for meeting milestones

- Limited knowledge, skills, and experience of existing staff

- Building and enhancing project management expertise within the existing team

- Keeping project management practices viable given staffing and budget realities
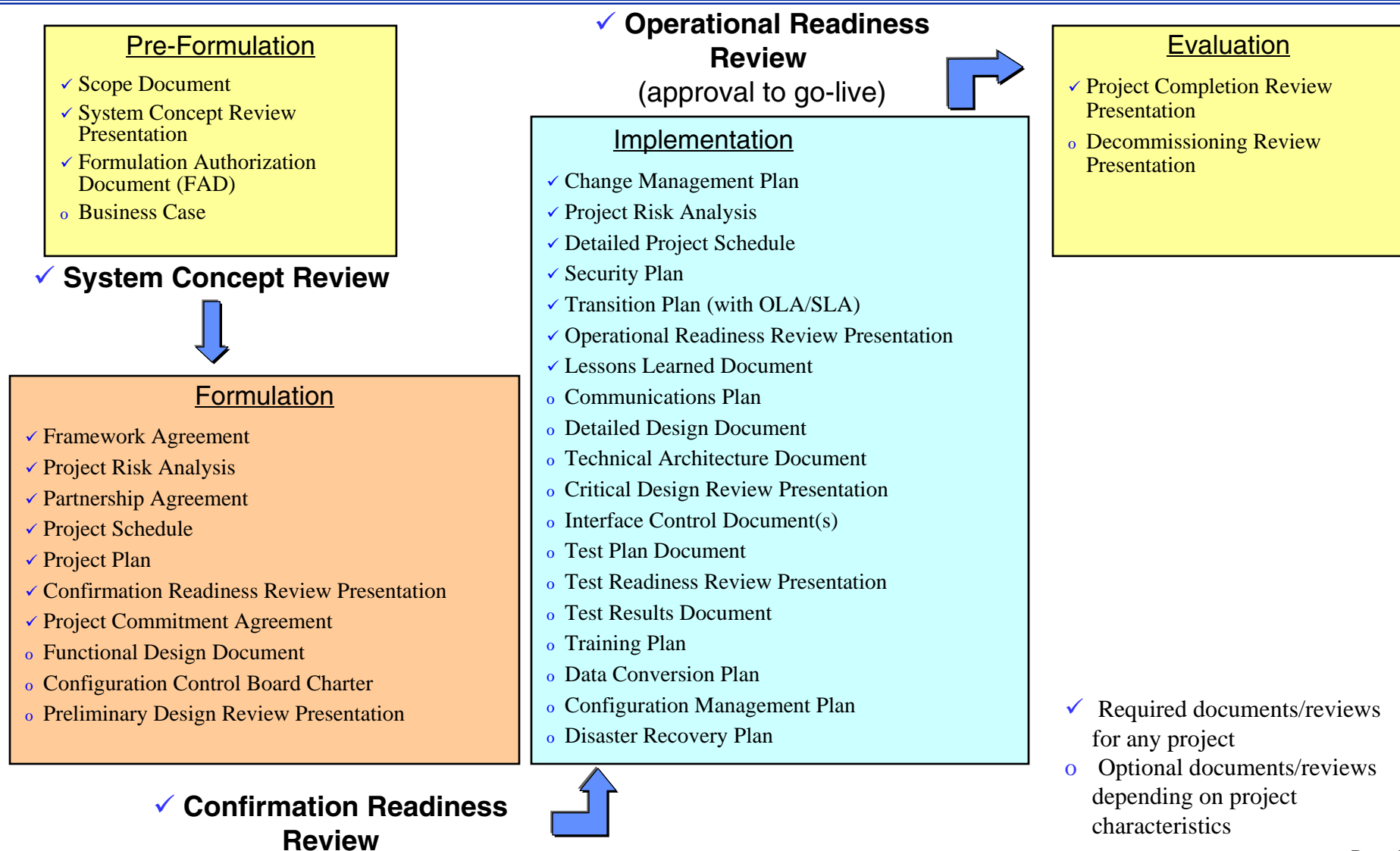
Keys to PMO Success During the Past Year

1. Create a standard project management framework
   - Develop an Institutional IT Project Management (PM) Framework based on NASA NPR 7120.5D / 7120.7 - NASA Program and Project Management Requirements
   - Produce templates and examples of deliverables and reviews
   - Tailor the application of the Framework elements to project size and complexity

2. Obtain CIO and Center management support
   - Obtain concurrence and support, establishing high level visibility, expectations, and accountability

3. Apply the PM Framework consistently
   - Define characteristics of a project
   - Establish Project Manager commitments and monitor performance

4. Emphasize stakeholder analysis and communications
   - Supplement existing staff
   - Develop and manage a stakeholder analysis and communications plan for each project early on

5. Actively coach project managers and team members, and support their professional growth
   - Assist Project Managers in producing plans and deliverables
   - Build and enhance project management expertise

6. Conduct process improvement
   - Periodically assess project management success
   - Adjust the project management processes to leverage lessons learned

Overview of PM Framework:
Documentation and Reviews Produced in each Phase

Pre-Formulation

- ✓ Scope Document
- ✓ System Concept Review Presentation
- ✓ Formulation Authorization Document (FAD)
- o Business Case

✓ **System Concept Review**

Formulation

- ✓ Framework Agreement
- ✓ Project Risk Analysis
- ✓ Partnership Agreement
- ✓ Project Schedule
- ✓ Project Plan
- ✓ Confirmation Readiness Review Presentation
- ✓ Project Commitment Agreement
- o Functional Design Document
- o Configuration Control Board Charter
- o Preliminary Design Review Presentation

✓ **Confirmation Readiness Review**

✓ **Operational Readiness Review**
(approval to go-live)

Implementation

- ✓ Change Management Plan
- ✓ Project Risk Analysis
- ✓ Detailed Project Schedule
- ✓ Security Plan
- ✓ Transition Plan (with OLA/SLA)
- ✓ Operational Readiness Review Presentation
- ✓ Lessons Learned Document
- o Communications Plan
- o Detailed Design Document
- o Technical Architecture Document
- o Critical Design Review Presentation
- o Interface Control Document(s)
- o Test Plan Document
- o Test Readiness Review Presentation
- o Test Results Document
- o Training Plan
- o Data Conversion Plan
- o Configuration Management Plan
- o Disaster Recovery Plan

Evaluation

- ✓ Project Completion Review Presentation
- o Decommissioning Review Presentation

✓ Required documents/reviews for any project

o Optional documents/reviews depending on project characteristics

Customer Perspective

Prior to the Project Management Framework

- Customer Board (IT Service Pool) identified funding priorities
- No consistent process was in place
- Customers had very little insight into the development
- Customers had very little influence into life cycle
- Project documentation was inconsistent from project to project
- PM capabilities filled the competence spectrum

Current Environment

- Governance Board (Chief Information Officer Technical Advisory Committee – CIOTAC) identifies funding priorities
- Consistent process is in place for selected projects
- Significantly more insight and influence into these projects exist via the review process
- Customers had received one collective vote among many at reviews. Now, the Governance Board comprises the voting membership.
- PMs and customers are beginning to understand the process, but need more experience in its use

Customer Perspective (Continued)

<u>Future</u>

- Governance Board (CIOTAC) identifies funding priorities
- Integrate the project funding process into the CIO governance (i.e., Capital Planning and Investment Control - CPIC)
- Publish a roadmap of projects using Framework
- Integrate Enterprise Architecture (EA) review early into PM Framework
- Conduct a semi-annual CIOTAC integrated status review of "significant" projects using the PM Framework

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- Lack of focus and consistency

- Not all Project members on the same "page"

- Scope Creep

- No clearly defined end to the Project

- Team members lacked clear understanding of roles and the big picture

Project Manager Perspective
Benefits of the PM Framework

- Provides a common roadmap for every Project resulting in consistency across the Project Management Office

- Protects the Project from outside influences that may otherwise cause the Project to lose focus and be deemed unsuccessful

- "Walks" the PM through a logical thought process for planning and executing the Project. Planning has to occur for a Project to be successful – writing it down makes the information available to the entire team in a consistent format

- Entire Project Team is aware of the scope, risks, detailed activities and schedule and therefore can be more focused on their individual roles and how their activities fit into the overall Project lifecycle

- Provides a smooth transition for new team members because the Project has been clearly documented along the way

- In practice, the application of the Framework has proven to be flexible for me– shrinking and growing to fit the size of the various projects that I have managed in the organization

- The artifacts and reviews required have not been burdensome. We have a library of templates and examples that are very useful

What Did We Gain?

- Management insight into the prioritization, staffing, and performance of Directorate projects
- Consistency of IT project management processes and documentation
- Predictability of cost and schedule
- Integration of project schedules and dependencies
- Improved customer communication and involvement
- Support structure for project managers
- Management of user expectations
- Improved credibility
- More unified organization with common goals

- Project interdependencies need to be managed
- Change management (stakeholder analysis and communications) is a key component of a successful project
- Initial successes led to increased interest in using the Project Management Framework
- Informal peer reviews decreased the number of Requests for Action
- A central repository for all project documents is essential

How Do We Move Forward?

- Expand application of the project management framework to:
  - Key operations initiatives within ITCD
  - Institutional IT projects across the Center

- Partner with other GSFC organizations to acquire additional project management staff expertise
- Instill leadership competencies of change management in our project managers
- Expand the use of the centralized repository for all project documents

Backup

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Keys to PMO Success
1 – Create a Standard Project Management Framework

Challenges:

- Project Management rigor was inconsistent, making it difficult to:

    – Control requirements
    – Manage to a firm schedule
    – Obtain customer buy-in
    – Manage customer expectations
    – Count on consistent team performance
    – Understand project status

- Insufficient repeatable processes have lead to inconsistent performance and customer/staff frustration

Approach:

- Develop an Institutional IT Project Management (PM) Framework based on NASA NPR 7120.5D / 7120.7 - NASA Program and Project Management Requirements

- Produce templates and examples of deliverables and reviews

- Tailor the application of the Framework elements to project size and complexity

- Train staff on the process

- Apply the Framework from the beginning for new PMO projects and at the appropriate gateway review for on-going PMO projects

Keys to PMO Success
2 – Obtain CIO and Center Management Support

Challenges:

- Gaining leverage for the implementation of the structured project management approach

- Reinforcing the structured approach to give it sufficient time to prove its worth

Approach:

- Present approach to Center management and obtain concurrence and support, establishing high level visibility and accountability

- Obtain Directorate management endorsement of the project management framework and direction for staff participation

- Establish a governance structure that encompasses customer and management participation in project definition, requirements development, gateway reviews, and status reporting

Keys to PMO Success
3 – Apply the PM Framework Consistently

Challenges:

- Some perceive the process as burdensome
- Knowing when an initiative becomes a project
- Accountability for meeting milestones

Approach:

- Define characteristics of a project and a service provision
- Define specific projects; start and end dates, requirements, success measures, resources, schedule
- Appoint Project Managers
- Establish Project Manager commitments via project Scope, Schedule, and Project Plan
- Increase Project Managers accountability for meeting project commitments through MSRs and gateway reviews
- Monitor project performance to ensure conformance with the PM Framework, increasing PMO involvement when necessary

Challenge:

- Understanding and working with the customer community for each project (Change Management)
  - Identification of stakeholder groups
  - Impacts on/by stakeholder groups
  - Communication messages and interaction

- Limited change management skills and experience of the existing staff

Approach:

- Acquire experienced contractor support

- Develop a change management tool kit for project team

- Develop a stakeholder analysis and communications plan for each project
  - Perform early on
  - Involve civil servant project team members to establish a competency
  - Manage to the communications plan

Keys to PMO Success
5 - Actively Coach Project Managers and Team Members

Challenge:

- Limited skills and experience of existing staff
- Need to utilize existing staff for project management
- Need to build and enhance project management expertise within the existing team

Approach:

- Provide PMO-developed Framework and case study training workshops, examples, and templates
- Senior staff works directly with project managers to plan the project and develop deliverables; getting started, sources of assistance, estimating
- PMO serves as advocate for project managers during reviews
- Build and enhance project management expertise
    - Team members perform self assessments, identifying goals and areas of interest
    - Management reviews the self assessments and matches team members with projects based on requirements and development goals, and identifies training opportunities
    - Provides an opportunity for individuals to participate in defining their own career growth path
    - Provide management involvement throughout the year

Keys to PMO Success
6 – Conduct Process Improvement

Challenge:

- Keep project management practices viable in a changing environment
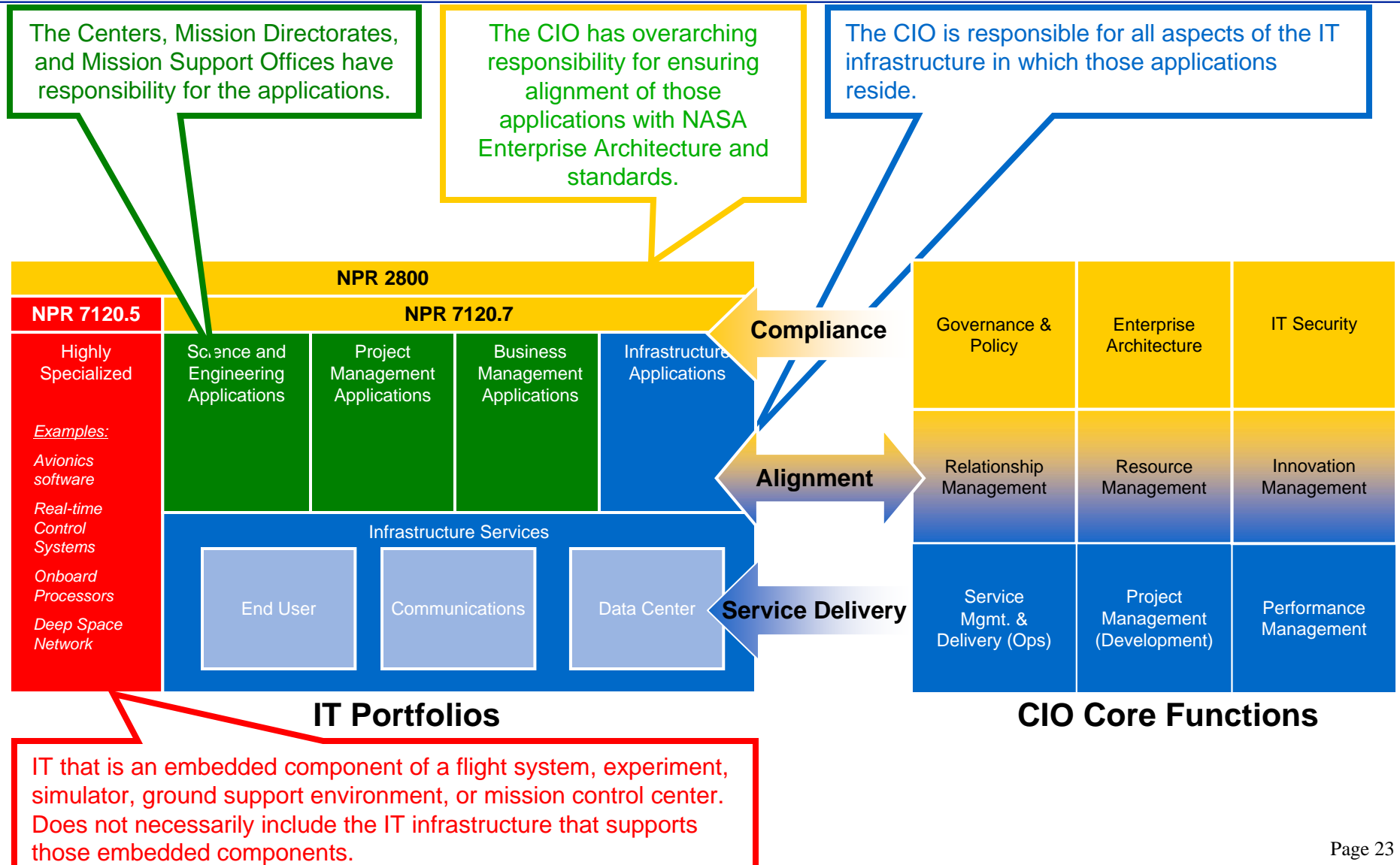- Successfully manage IT projects given staffing and budget realities

Approach:

- Periodically assess project management success from the perspectives of project managers, customers, and CIO and Center management
- Identify lessons learned at the end of each project and periodically across projects
- Adjust the project management process to leverage lessons learned and address project management assessments

Role of the CIO in Managing IT

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The Centers, Mission Directorates, and Mission Support Offices have responsibility for the applications.

The CIO has overarching responsibility for ensuring alignment of those applications with NASA Enterprise Architecture and standards.

The CIO is responsible for all aspects of the IT infrastructure in which those applications reside.

NPR 2800

NPR 7120.5

NPR 7120.7

Highly Specialized

Examples:

Avionics software

Real-time Control Systems

Onboard Processors

Deep Space Network

Science and Engineering Applications	Project Management Applications	Business Management Applications	Infrastructure Applications

Infrastructure Services

End User	Communications	Data Center

Compliance

Alignment

Service Delivery

IT Portfolios

CIO Core Functions

Governance & Policy	Enterprise Architecture	IT Security
Relationship Management	Resource Management	Innovation Management
Service Mgmt. & Delivery (Ops)	Project Management (Development)	Performance Management

IT that is an embedded component of a flight system, experiment, simulator, ground support environment, or mission control center. Does not necessarily include the IT infrastructure that supports those embedded components.

Overall Approach

Challenges

CIO is detached from the mission

Inconsistent understanding of how IT is managed at NASA & role of CIO

Current IT Infrastructure inhibits cross-center collaboration

Proliferation of tools and lack of standards to enable integration

Significant IT Security vulnerabilities

Lack of visibility and financial controls on IT Spending

IT Principles

Mission Enablement

Integration

Security

Efficiency

Key Strategies

Organization

Financial Management

Governance

Application Portfolio Management

Infrastructure